

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) An implantable pressure sensing device, comprising:
 - a pressure sensor;
 - a pressure transmission catheter having a proximal portion, a mid portion, a distal portion, a distal port, and a lumen extending therethrough, the proximal portion of the catheter connected to the pressure sensor;
 - a pressure transmission fluid disposed in the lumen;
 - a barrier disposed proximate the distal port to retain the fluid in the lumen; and
 - a surface modification on an outside surface of the distal portion of the catheter, wherein the surface modification promotes tissue in-growth at a blood interface.
2. (Original) An implantable pressure sensing device as in claim 1, wherein the pressure sensor is connected to a telemetry unit.
3. (Previously Presented) An implantable pressure sensing device as in claim 36, wherein the distal portion of the catheter is flared to define the larger inside diameter.
4. (Previously Presented) An implantable pressure sensing device as in claim 36, wherein the distal portion of the catheter is counter-bored to define the larger inside diameter.
5. (Canceled)

6. (Canceled)

7. (Previously Presented) An implantable pressure sensing device as in claim 1, wherein the surface modification prevents migration of infectious contaminants.

8. (Previously Presented) An implantable pressure sensing device as in claim 1, wherein the surface modification improves a seal between the catheter and surrounding tissue.

9. (Previously Presented) An implantable pressure sensing device as in claim 1, wherein the surface modification improves anchoring between the catheter and surrounding tissue.

10. (Previously Presented) An implantable pressure sensing device as in claim 1, wherein the surface modification comprises a layer of material.

11. (Original) An implantable pressure sensing device as in claim 10, wherein the layer comprises a tube.

12. (Original) An implantable pressure sensing device as in claim 11, wherein the tube has a proximal end and a distal end, and wherein the tube is connected to the catheter at only one of the proximal and distal ends.

13. (Original) An implantable pressure sensing device as in claim 1, wherein the barrier comprises a gel, and wherein the gel is recessed back from the distal port.

14. (Original) An implantable pressure sensing device as in claim 1, wherein the barrier comprises a membrane extending over the distal port.

15. (Original) An implantable pressure sensing device as in claim 1, wherein the distal port is distal-facing.

16. (Original) An implantable pressure sensing device as in claim 1, wherein the distal port is side-facing.

17. (Original) An implantable pressure sensing device as in claim 1, further comprising a dissolvable material disposed in the distal port.

18. (Original) An implantable pressure sensing device as in claim 1, further comprising a fill hole in a side wall of the catheter.

19. (Original) An implantable pressure sensing device as in claim 1, further comprising a pair of protrusions extending from a side of the catheter to grasp tissue therebetween.

20. (Original) An implantable pressure sensing device as in claim 1, wherein at least a portion of the catheter is in the shape of a helix.

21. (Original) An implantable pressure sensing device as in claim 1, wherein the lumen has a non-circular geometry.

22. (Canceled)

23. (Canceled)

24. (Previously Presented) An implantable pressure sensing device, comprising:
a pressure sensor configured to be implanted in a body of a patient; and

a pressure transmission catheter having an open proximal end, a closed distal end, and a liquid-filled lumen extending therethrough, the proximal end of the catheter connected to the pressure sensor, wherein the catheter comprises a tube, and wherein the distal end of the catheter is closed by an integral extension of the tube.

25. (Canceled)

26. (Currently Amended) An implantable pressure sensing device comprising:

a pressure sensor;

a pressure transmission catheter having a proximal end, a distal end, and a fluid filled lumen extending therethrough, the proximal end of the catheter connected to the pressure sensor, wherein at least a distal portion of the catheter includes a modification to the outer surface of the catheter ~~has been modified to include an outer~~ including a layer of material that comprises ePTFE to at least one of, at a blood interface site, promoting promote tissue in-growth, prevent migration of infectious contaminants, improve a seal between the catheter and surrounding tissue, improve anchoring between the catheter and surrounding tissue, and improve endothelialization.

27. (Canceled)

28. (Canceled)

29. (Currently Amended) An implantable pressure sensing device comprising:

a pressure sensor;

a pressure transmission catheter having a proximal end, a distal end, and a fluid filled lumen extending therethrough, the proximal end of the catheter connected to the pressure sensor, wherein at least a distal portion of the catheter includes a modification to the outer surface of the catheter ~~has been modified to include~~ including an outer layer of material that

comprises polyester fabric to at least one of, ~~at a blood interface site, promoting~~ promote tissue in-growth, prevent migration of infectious contaminants, improve a seal between the catheter and surrounding tissue, improve anchoring between the catheter and surrounding tissue, and improve endothelialization.

30. (Canceled)

31. (Canceled)

32. (Currently Amended) An implantable pressure sensing device, comprising:
a pressure sensor;

a pressure transmission catheter having a proximal portion, a distal portion, a distal port, and a lumen extending therethrough, the proximal portion of the catheter connected to the pressure sensor;

a pressure transmission fluid disposed in the lumen; and

a barrier disposed proximate the distal port to retain the fluid in the lumen;

~~An implantable pressure sensing device as in claim 31,~~ wherein the pressure transmission catheter containing the pressure transmission fluid and barrier collectively act as a low-pass filter for frequencies above 10 Hz.

33. (Original) An implantable pressure sensing device as in claim 32, wherein the pressure transmission catheter containing the pressure transmission fluid and barrier collectively act as a low-pass filter for frequencies above 5 Hz.

34. (Original) An implantable pressure sensing device as in claim 33, wherein the pressure transmission catheter containing the pressure transmission fluid and barrier collectively act as a low-pass filter for frequencies above 1 Hz.

35. (Withdrawn) A method of implanting a pressure sensor assembly, comprising:
providing a sensor assembly, the sensor assembly comprising a housing, a pressure sensor in the housing, and a pressure transmission catheter extending from the housing;
providing a trocar;
providing an introducer having a peelable sheath;
providing a retainer having a proximal handle and a distal plate with a slot therein;
positioning the trocar in the introducer;
penetrating bodily tissue with the trocar and introducer such that a distal end of the trocar and introducer reside in a body cavity where pressure is to be measured;
removing the trocar from the introducer;
inserting the pressure transmission catheter into the introducer until a distal end of the pressure transmission catheter resides in the body cavity;
positioning the retainer such that the distal plate rests against the bodily tissue and the introducer resides in the slot; and
removing the introducer by peeling the sheath around the pressure sensor assembly while leaving the pressure transmission catheter in place.

36. (Previously Presented) An implantable pressure sensing device as in claim 1, wherein the distal portion of the catheter has an inside diameter that is larger than an inside diameter of the mid portion of the catheter.

37. (Currently Amended) An implantable pressure sensing device, comprising:
a pressure sensor;
a pressure transmission catheter having a proximal portion, a mid portion, a distal portion, a distal port, and a lumen extending therethrough, the proximal portion of the catheter connected to the pressure sensor;
a pressure transmission fluid disposed in the lumen;

a barrier disposed proximate the distal port to retain the fluid in the lumen; and
a surface modification on an outside surface of a distal portion of the catheter,
wherein the surface modification improves a seal, at a blood interface, between the catheter and
surrounding tissue.

38. (Previously Presented) An implantable pressure sensing device, comprising:

a pressure sensor;

a pressure transmission catheter having a proximal portion, a mid portion, a distal
portion, a distal port, and a lumen extending therethrough, the proximal portion of the catheter
connected to the pressure sensor;

a pressure transmission fluid disposed in the lumen;

a barrier disposed proximate the distal port to retain the fluid in the lumen; and

a pair of protrusions extending from a side of the catheter to grasp tissue
therebetween.

39. (Canceled)

40. (New) A method of producing an implantable pressure sensing device,
comprising:

determining an appropriate low-pass filter half-power frequency for a pressure
measurement application; and

providing a pressure transmission catheter having a lumen extending
therethrough, with a pressure transmission fluid disposed in the lumen and a gel barrier disposed
proximate a distal port of the catheter to retain the fluid in the lumen; wherein

at least one of an elastic modulus of a polymer used to make the catheter, a length
of the gel barrier, a diameter of the lumen, and a viscosity of the fluid is selected to achieve the
low-pass filter half-power frequency for the device.